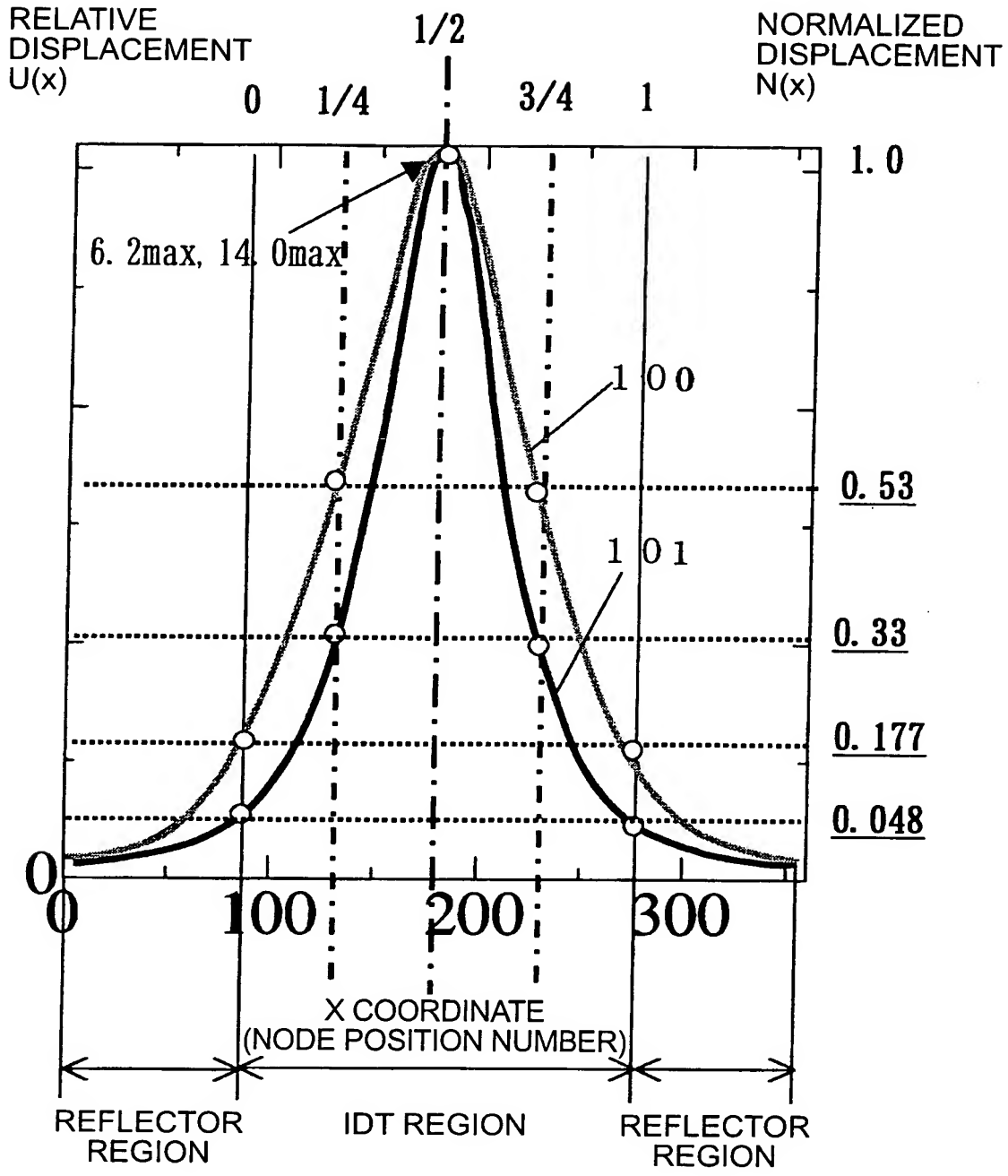

100, 101 ENVELOPE AMPLITUDE OF VIBRATION DISPLACEMENT

FIG. 1

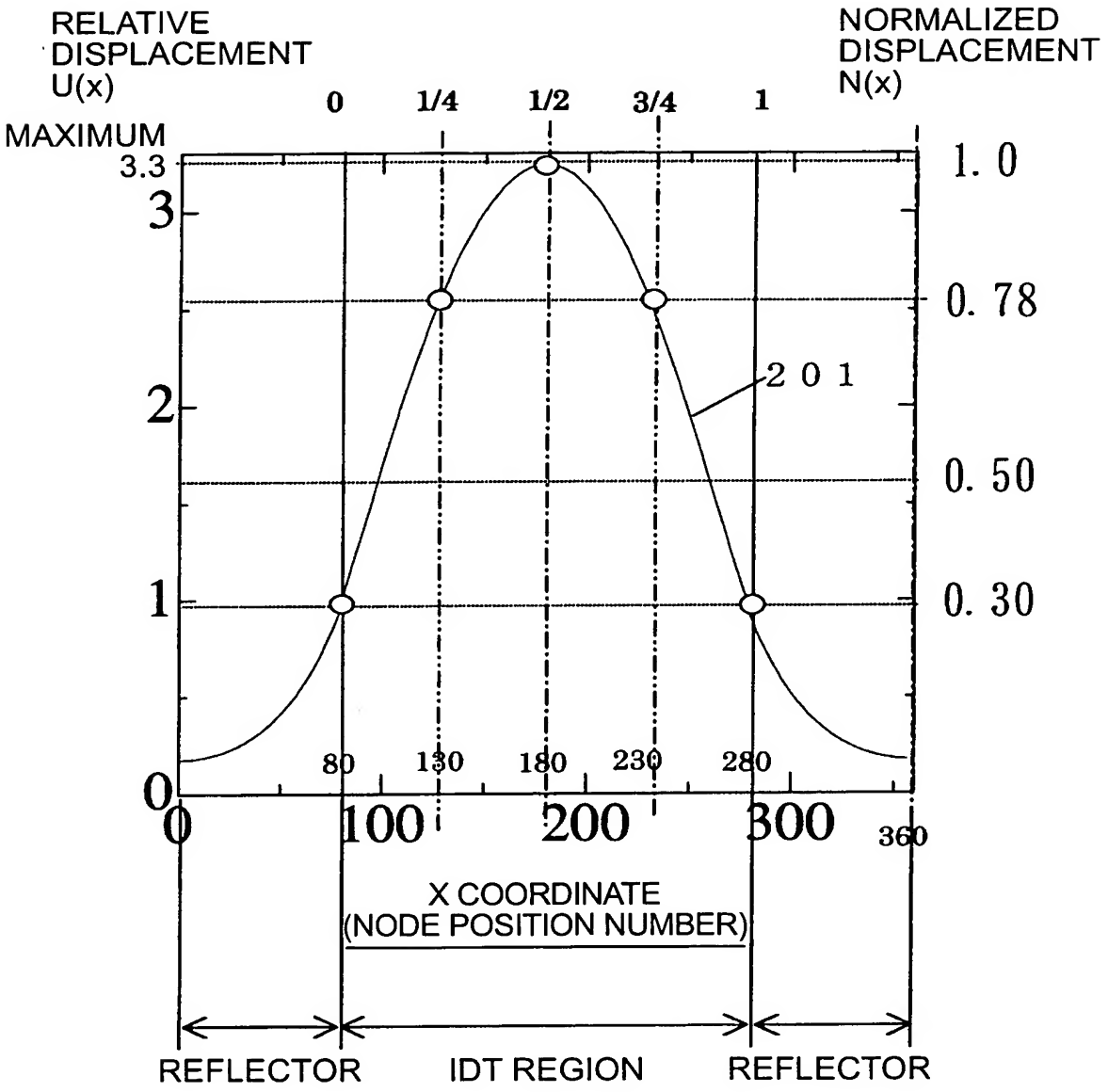
RELATIVE
DISPLACEMENT
U(x)
NORMALIZED
DISPLACEMENT
N(x)
0
1/4
1/2
3/4
1
MAXIMUM
3.3
3
2
1
0
1. 0
0. 78
0. 50
0. 30
201
80
130
180
230
280
0
100
200
300
360
X COORDINATE
(NODE POSITION NUMBER)
REFLECTOR
IDT REGION
REFLECTOR

FIG. 2

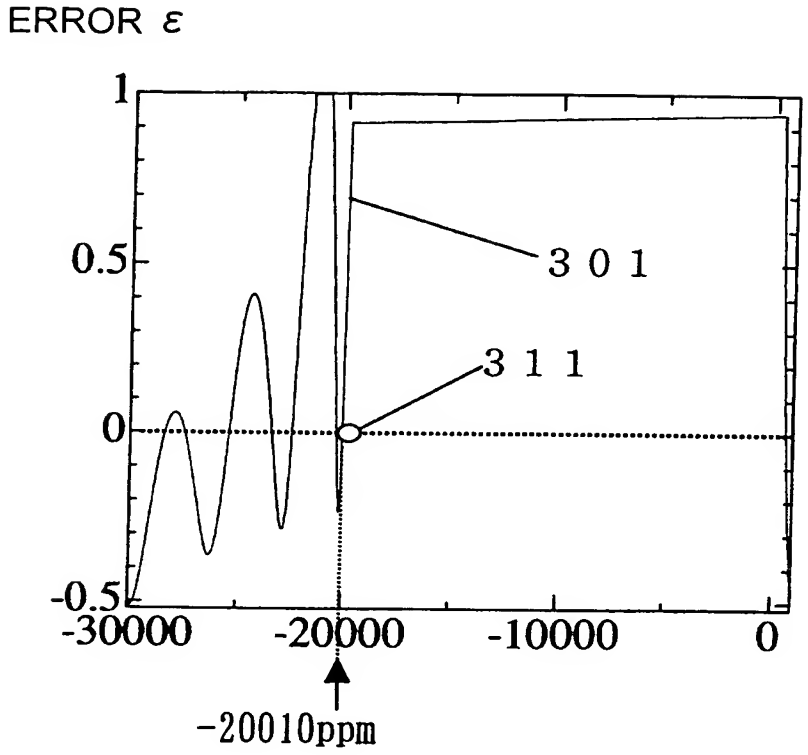
ERROR ε
1
0.5
0
-0.5
-30000
-20000
-10000
0
301
311
-20010ppm

FIG. 3A

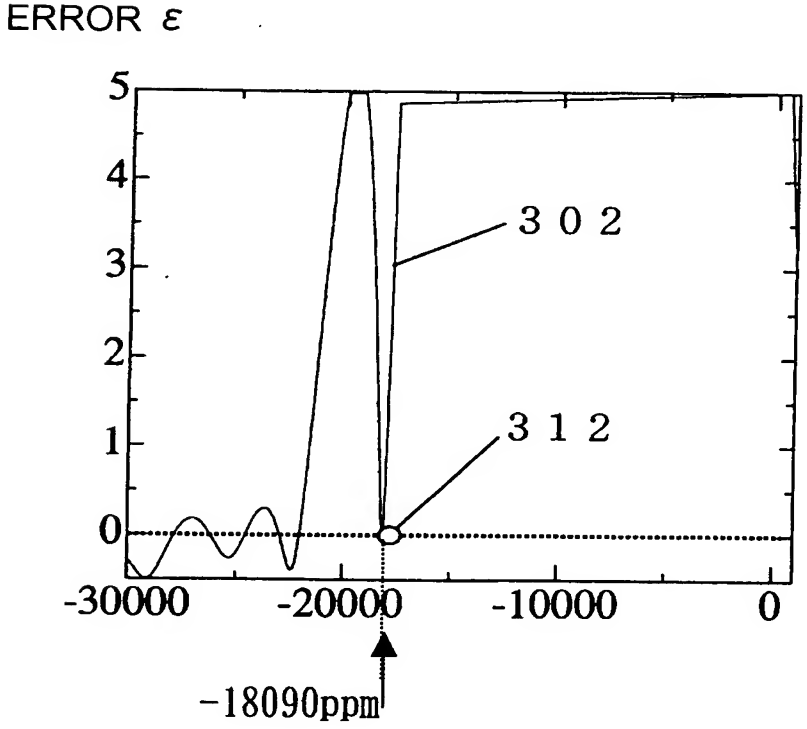
ERROR ε
5
4
3
2
1
0
-30000
-20000
-10000
0
302
312
-18090ppm

FIG. 3B

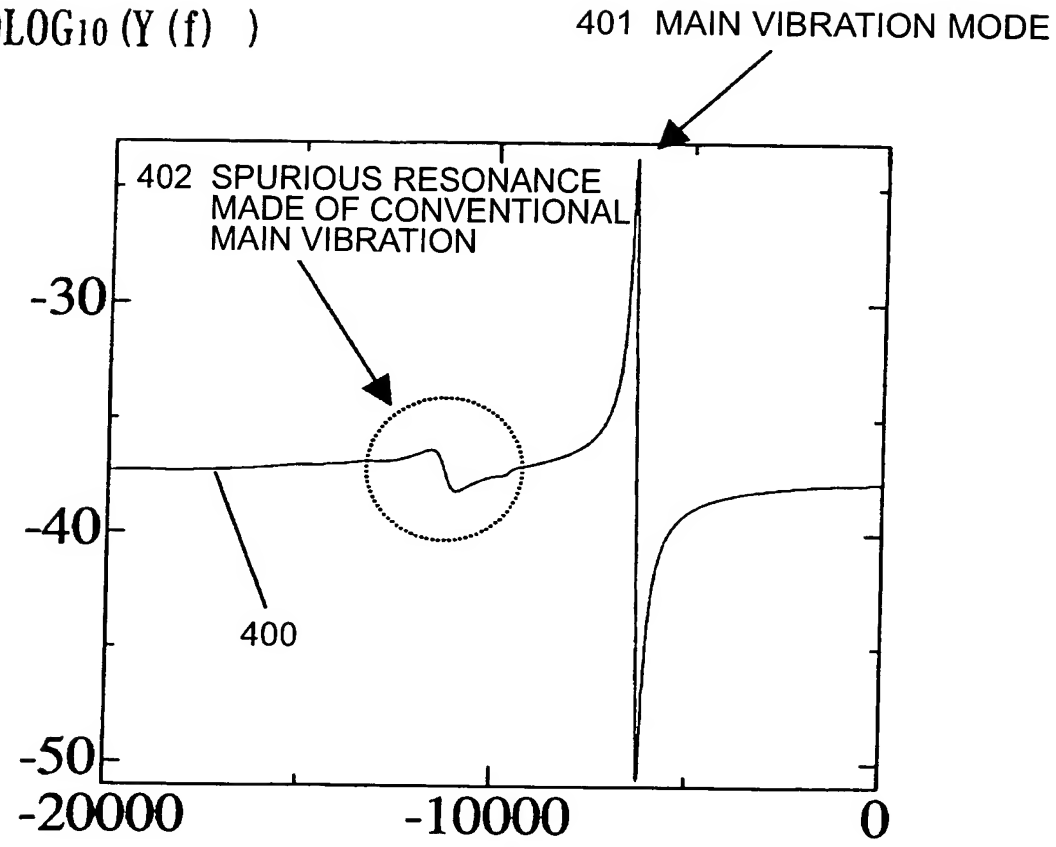
20LOG10 (Y (f))
401 MAIN VIBRATION MODE
402 SPURIOUS RESONANCE MADE OF CONVENTIONAL MAIN VIBRATION
-30
-40
-50
400
-20000
-10000
0
FREQUENCY DEVIATION df / f (ppm)

FIG. 4

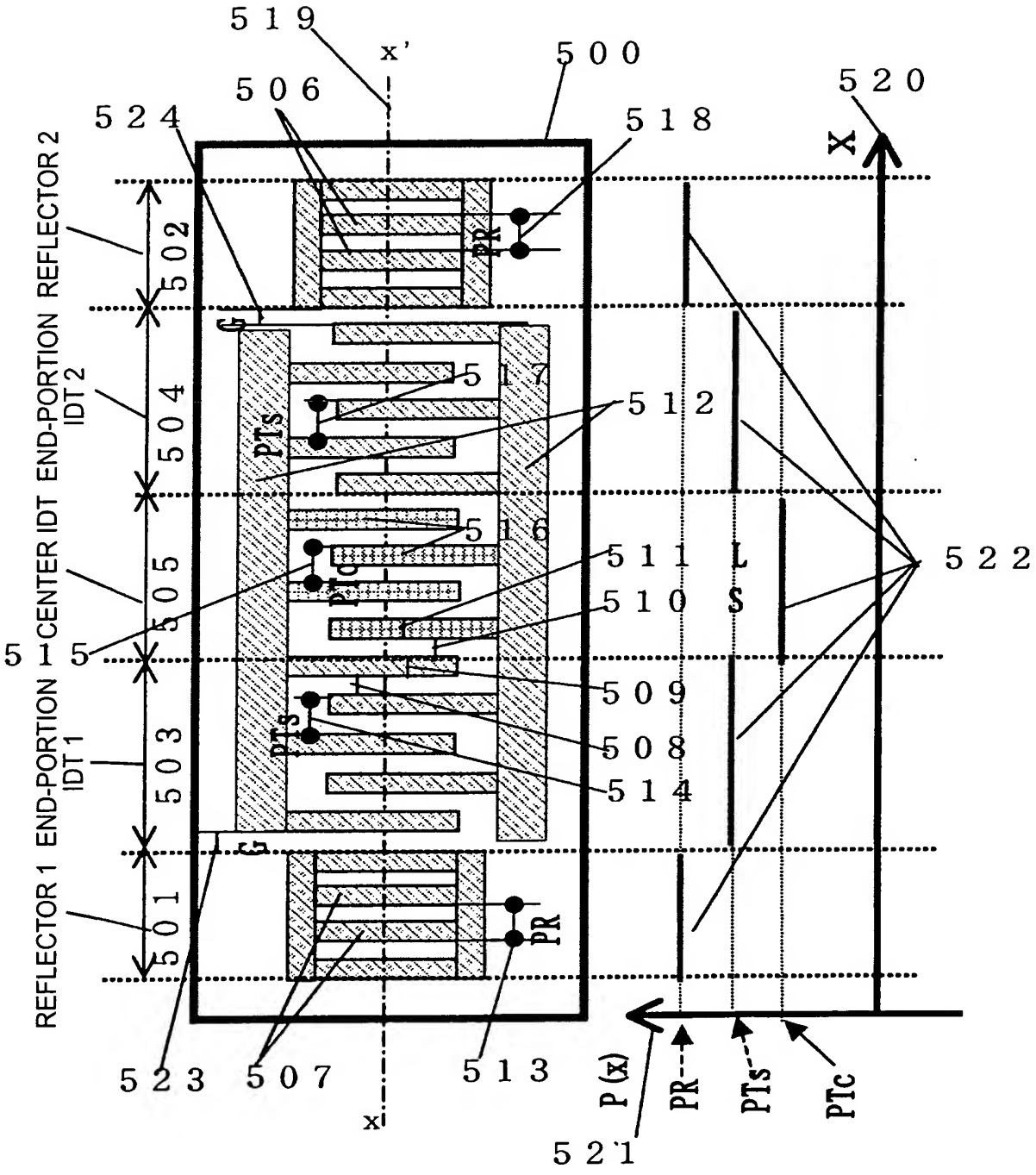
519
x'
500
506
524
518
520
X
502
504
505
515
503
501
REFLECTOR 1
END-PORTION
IDT 1
CENTER IDT
END-PORTION
IDT 2
REFLECTOR 2
517
512
516
511 L
510 S
509
508
514
522
523
507
513
x
P(x)
PR
PTs
PTc
521

FIG. 5

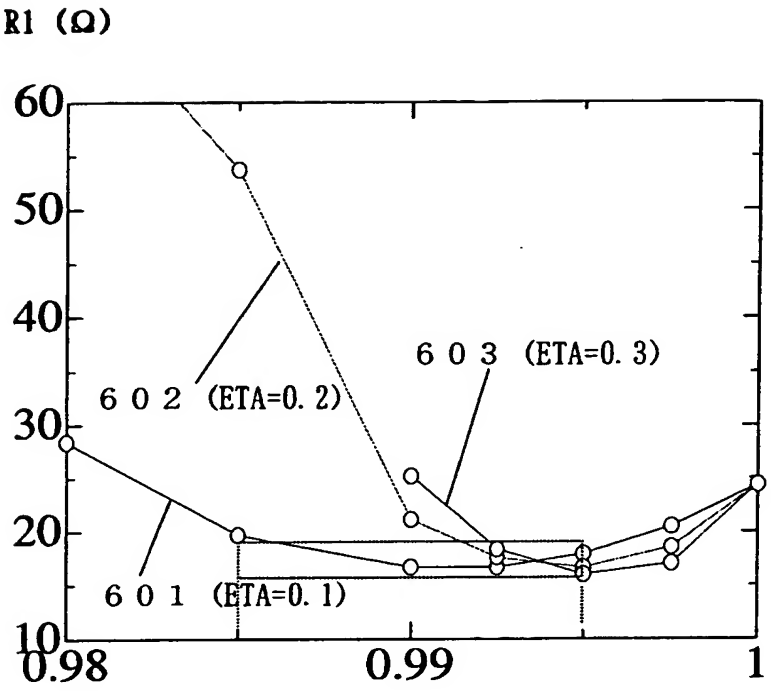
R1 (Ω)
60
50
40
30
20
10
0.98
0.99
1
6 0 2 (ETA=0. 2)
6 0 3 (ETA=0. 3)
6 0 1 (ETA=0. 1)
LINE WIDTH RATIO PTNG OF ELECTRODES

FIG. 6

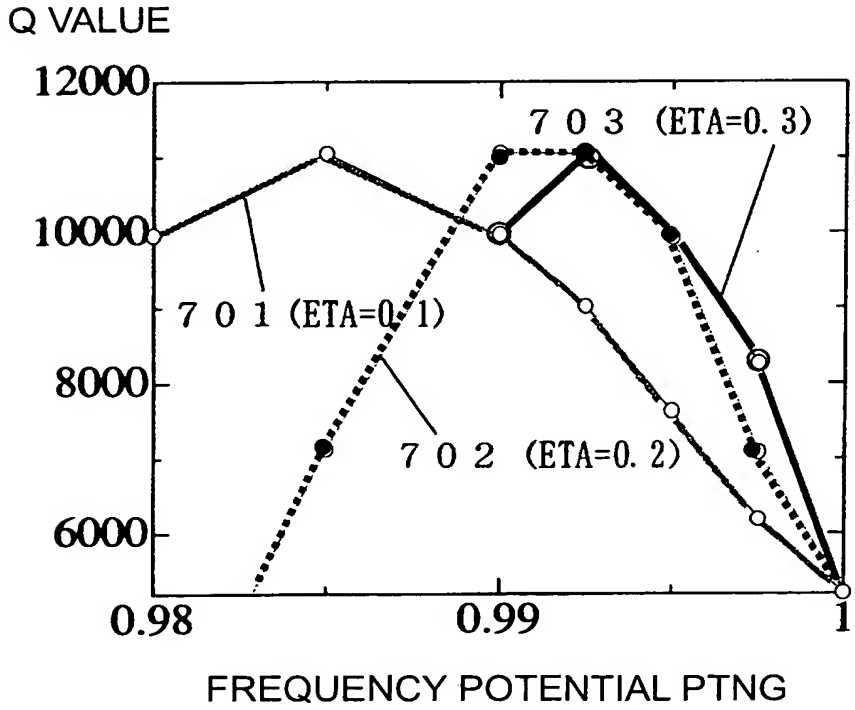
Q VALUE
12000
10000
8000
6000
0.98
0.99
1
7 0 3 (ETA=0. 3)
7 0 1 (ETA=0. 1)
7 0 2 (ETA=0. 2)
FREQUENCY POTENTIAL PTNG

FIG. 7

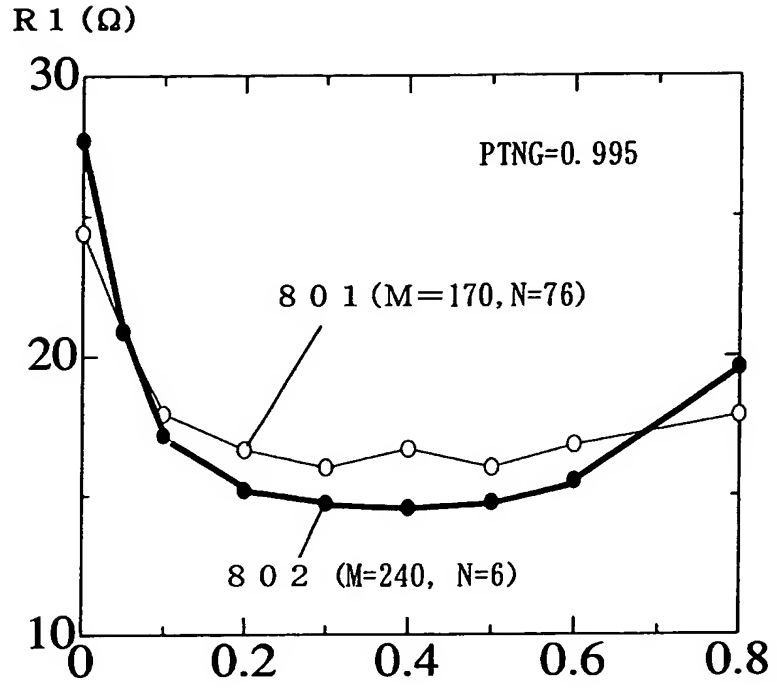
R 1 (Ω)
30
20
10
PTNG=0. 995
8 0 1 (M=170, N=76)
8 0 2 (M=240, N=6)
0
0.2
0.4
0.6
0.8
RATIO OF CENTER IDT ETA = Mc / M

FIG. 8

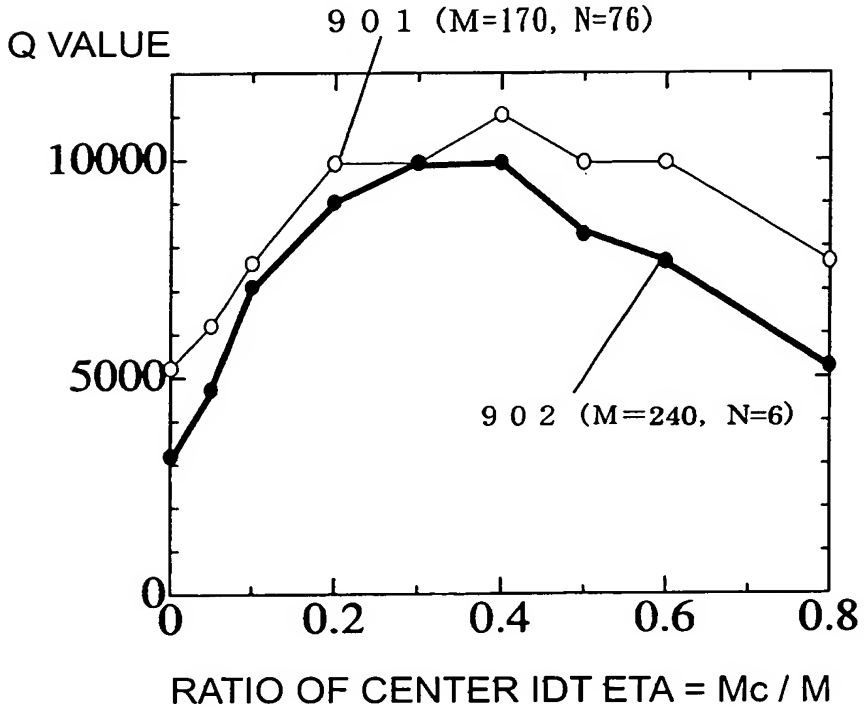
Q VALUE
9 0 1 (M=170, N=76)
10000
5000
0
9 0 2 (M=240, N=6)
0
0.2
0.4
0.6
0.8
RATIO OF CENTER IDT ETA = Mc / M

FIG. 9

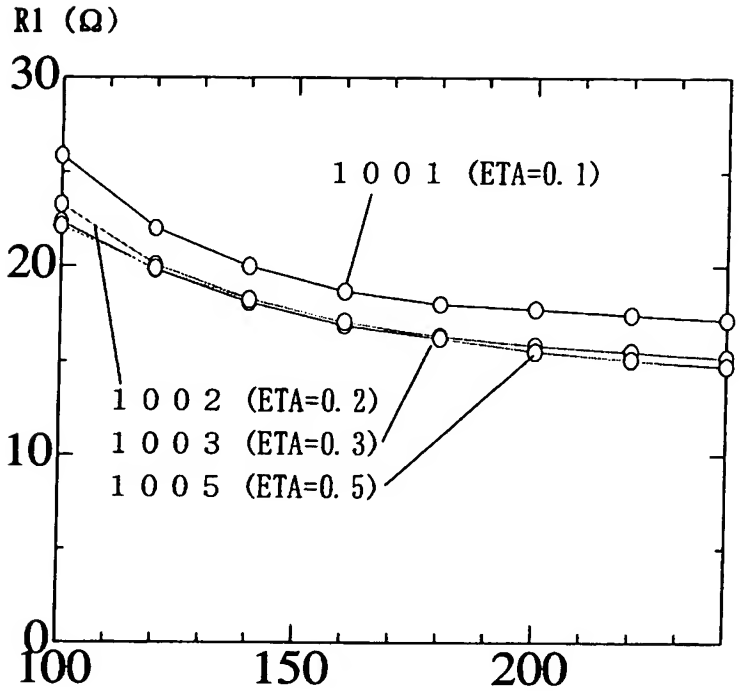
R1 (Ω)
30
20
10
0
100
150
200
1 0 0 1 (ETA=0. 1)
1 0 0 2 (ETA=0. 2)
1 0 0 3 (ETA=0. 3)
1 0 0 5 (ETA=0. 5)
NUMBER OF PAIRS M (PAIRS) IN IDT

FIG. 10

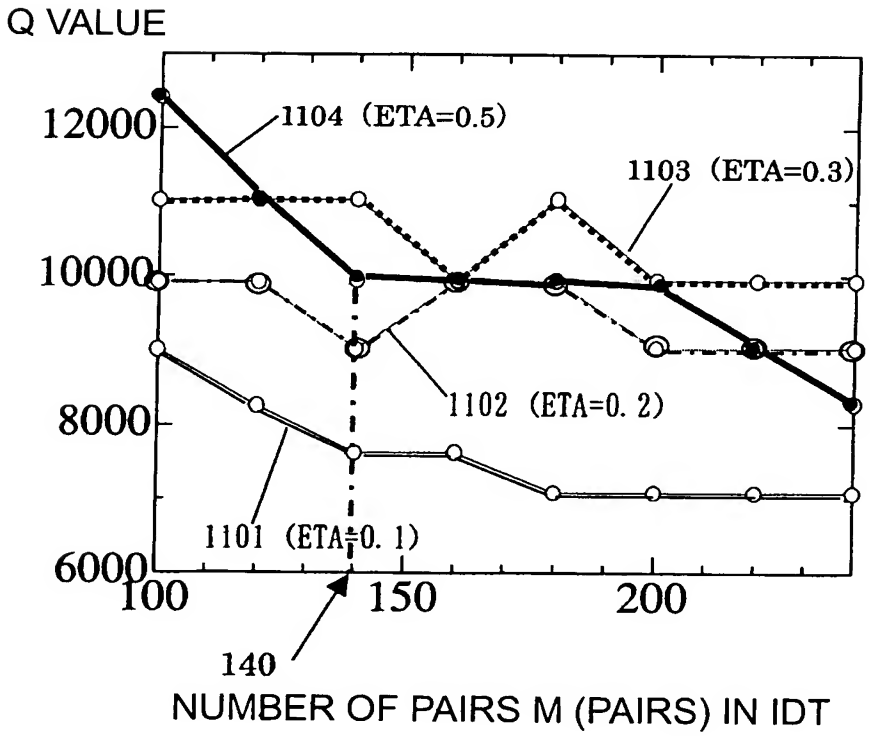
Q VALUE
12000
10000
8000
6000
100
150
200
1104 (ETA=0.5)
1103 (ETA=0.3)
1102 (ETA=0. 2)
1101 (ETA=0. 1)
140
NUMBER OF PAIRS M (PAIRS) IN IDT

FIG. 11

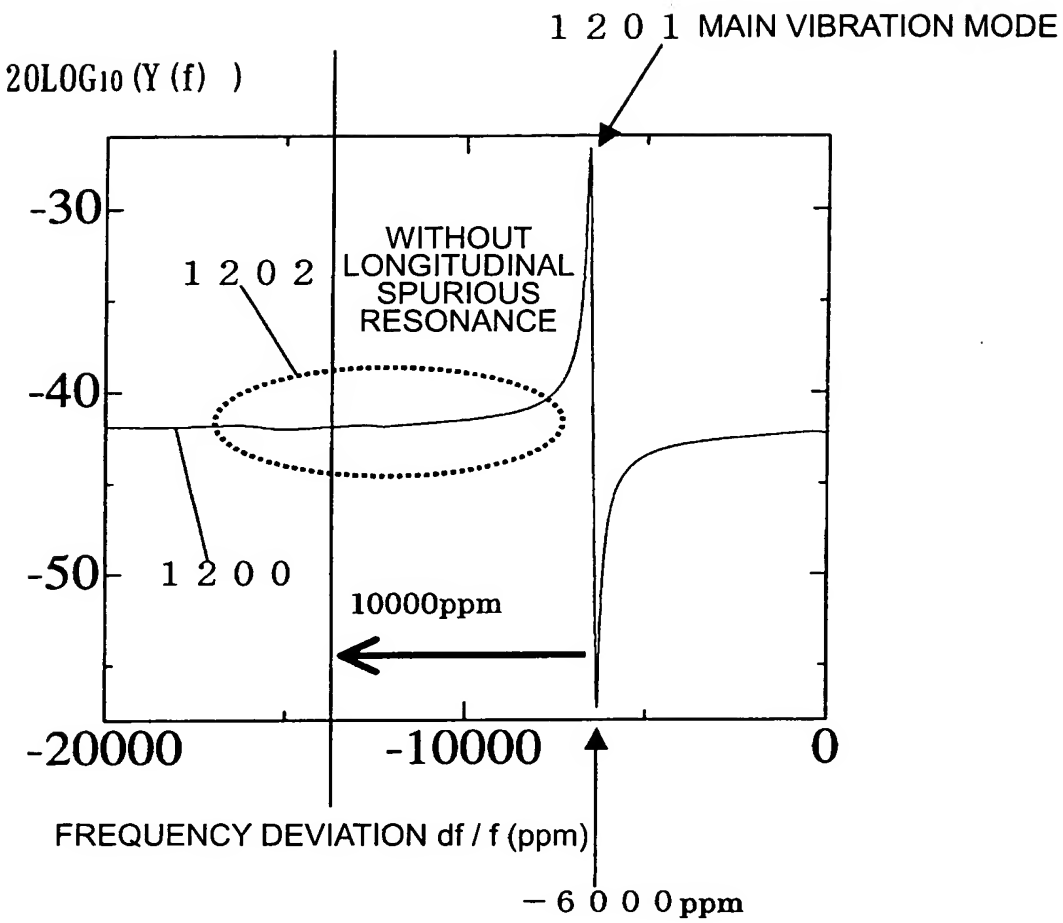
1 2 0 1 MAIN VIBRATION MODE
20LOG10 (Y (f))
-30
-40
-50
1 2 0 2
WITHOUT LONGITUDINAL SPURIOUS RESONANCE
1 2 0 0
10000ppm
-20000
-10000
0
FREQUENCY DEVIATION df / f (ppm)
− 6 0 0 0 ppm

FIG. 12

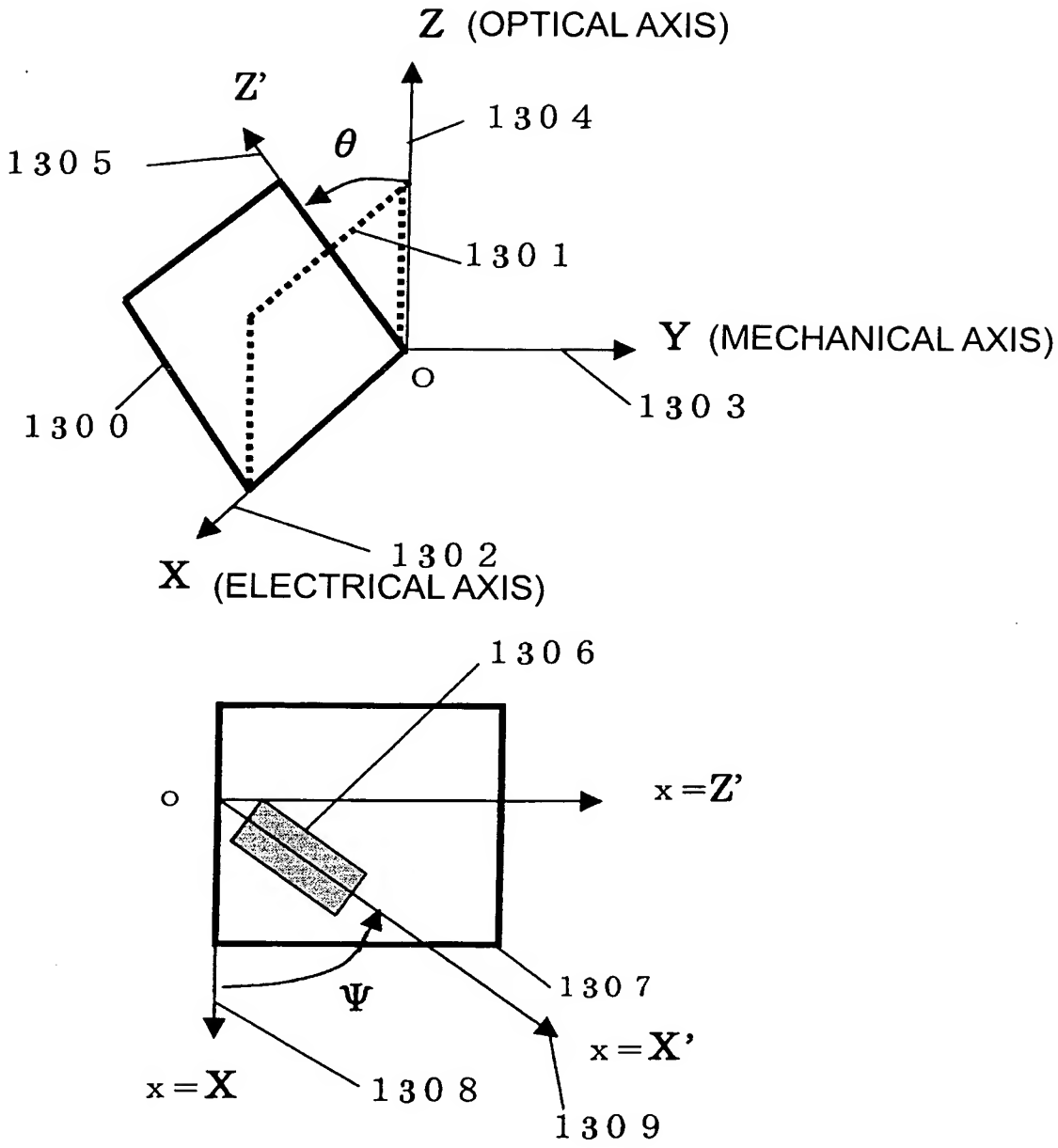
Z (OPTICAL AXIS)
Z'
θ
1304
1305
1301
Y (MECHANICAL AXIS)
O
1303
1300
1302
X (ELECTRICAL AXIS)
1306
o
x=Z'
1307
Ψ
x=X'
x=X
1308
1309

FIG. 13